cases of thrombophlebitis, as has been recently advocated by Buxton and Coller.[12] One is only doing again what nature has already accomplished by the inflammatory process.

SUMMARY

1. Present day knowledge concerning the various types of intravenous clotting involving the lower leg is reviewed. The course and sequelæ of each are discussed.

2. A strong plea is made for more energetic prophylaxis, because it has been abundantly demonstrated that the majority of these cases can be prevented.

3. Surgical treatment of phlebothrombosis is stressed as being preferable to dicoumarol in preventing the frequent occurrence of emboli and the occasional sudden death from this cause.

4. Early diagnosis of thrombophlebitis is emphasized so that immediate treatment can be instituted, thereby limiting the spread of this condition and preventing the late complications of eczema and ulceration which are so difficult to treat.

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DECLINE IN INTELLIGENCE.—Several studies have indicated that there is an average of a two or three point decline in intelligence (I.Q.) in each generation. According to Thomson [The Decline in Intelligence, *Eugenics Review*, April, 1946], it is impossible to say how much of this may be due to heredity and how much to environment. The theory of the decline is, of course, based on present methods of intelligence testing, but these, like other scientific techniques, are subject to change. The decline, if true, may be due to the differential birth rate, families of higher intelligence ratings on the average having fewer children than those with low ratings.—Current Comment, *J. Am. M. Ass.*, **132**: 518, 1946.

PSYCHOSES WITH SOMATIC DISEASE*

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A PSYCHOSIS associated with anæmia, infection, endocrine disorders, malnutrition and other physical disease is usually referred to as "psychosis with somatic disease", or sometimes as "psychosis with metabolic disease". Other names for this type of mental disorder are "exogenous type of reaction" or "symptomatic psychosis". Distinguished from this group are the psychotic reactions due to neuro-syphilis, epidemic encephalitis, cerebral arteriosclerosis or any other specific lesion of the central nervous system if such a lesion is bound by its nature to produce psychotic manifestations.

The psychoses with somatic disease have received comparatively little attention of late. Whatever the reason for this limitation of interest may be, the Cumulative Medical Index reflects quite strikingly certain trends in that respect. It can be seen that during the last decade the psychoses associated with infection have been dealt with almost exclusively by foreign writers, while the English and American psychiatric literature is mostly concerned with malnutrition and its effects upon personality-organization. Anæmia and endocrine disorders hold an intermediate position of interest in our own and the foreign psychiatric literature. One wonders whether a psycho-analyst would attempt to interpret such a cultural pattern of oral predilection in our clinical productivity.

An interesting perspective may be gained through an analysis of some statistical data with regard to these psychoses with somatic disease. The material for this analysis was obtained from Dayton's[1] book "New Facts on Mental Disorders" which covers nearly 90,000 cases admitted to mental hospitals in Massachusetts between 1917 and 1933, and also from the latest available annual report[2] on all admissions to Canadian mental hospitals for the year 1943, covering about 7,500 cases.

The following facts emerge:

* Paper read at a meeting of the Psychiatric Branch of the Montreal Medico-Chirurgical Society held on April 23, 1946, at the Verdun Protestant Hospital, as introduction to a clinical symposium on Psychiatric Complications of Anæmia and Infection.

1. The entity of "psychosis with somatic disease" makes up about 3.5% of all admissions to mental hospitals.

2. Women show a considerably higher incidence of this disease than men until after the childbearing age, probably because puerperal psychoses are often classified under this heading. At about the 50-year mark, however, the number of men admitted with this diagnosis begins to rise and they soon outnumber the female admissions.

3. The average patient admitted with this kind of psychosis is middle-aged, around 35. The patient with a psychosis due to infection tends to be younger than the patient with a psychosis due to other physical disease. The older the patient the higher is the mortality.

4. In contrast with most other mental disorders, this group of psychoses is a "kill or cure" disease, since about 50% of the patients recover or improve, 35% die and only 15% become chronic cases. It is a psychosis of brief duration. The majority of the recovered or improved patients are discharged within the first six months after admission.

5. It is a "wear and tear" disease and as such is sensitive to socio-economic stress. It showed an increase during the years of increasing unemployment. Its incidence in the rural population is almost twice that of the urban. Being a "wear and tear" disease may or may not explain its higher incidence among married as compared with single persons.

6. An interesting discrepancy appears if one compares the figures for mental patients in the Province of Ontario with those in the Province of Quebec. The total number of admissions to mental hospitals in each Province is approximately equal. However, the psychoses with somatic disease occur three to four times as often in Quebec as in Ontario. This higher incidence in Quebec may be linked to the higher incidence of some infectious diseases in this Province as compared with Ontario.

These statistics, factual as they appear, should not prevent us from giving some attention to the theoretical discussion that has arisen around the diagnosis of psychosis with somatic disease. Several workers have expressed their doubt as to the real existence of such a clinical entity. They have pointed to the multitude of factors that may produce such a psychosis, and the multitude of symptoms which may be produced by them, and they have asked: what is there specific about a psychosis of this type other than the time relationship of the alleged cause and the symptoms? Bonnhoefer spent a lifetime investigating these psychoses and he finally reached the conclusion that true delirium and Korsakoff's syndrome are the only psychotic reactions that are specifically related to physical causes.

A critical discussion of this subject was published by Formanek[3] in 1939. He had at his disposal 15,000 cases of psychosis with somatic disease. From this number he chose a sample of 117 and investigated the families of these cases. He found that of these 117 patients, 25 had psychotic siblings. The high incidence of mental disorder in the families of these patients was striking enough and further significance was added to it by the fact that not one of these psychotic siblings had any somatic disease that was responsible for his mental disturbance. All were suffering from functional psychoses. In particular, the incidence of dementia præcox among the siblings of these patients, diagnosed as psychoses with somatic disease, was more than seven times as high as among the siblings of a control group of patients suffering from a toxic psychosis (alcoholic delirium) which Brugger had studied.

Because of their hereditary bias, Formanek concludes that many cases of psychoses with somatic disease should probably be diagnosed as functional psychoses, the physical disease only serving as a precipitating, almost incidental, factor in a constitutional predisposition to psychotic breakdown. He points out, however, that the truly delirious patients of his sample had no psychotic siblings, which is in line with Bonnhoefer's thesis which regards delirium as being of a symptomatic nature. Formanek was criticized—and probably justly so—because he had obtained his entire case material from mental hospitals and had failed to include the more acute and transitory cases found on the wards of general hospitals.

The findings of recent experimental research suggest that most of the abnormal mental symptoms that are toxic, metabolic, infectious or exhaustive in origin, and produce the clinical picture of a psychosis with somatic disease, have their common etiological link in some form of cerebral anoxia, (anoxic, anæmic,

histiotoxic, hypoglycæmic-anoxia). But while through such a mechanism the number of etiological factors would be greatly reduced, there still remains a wide array of mental symptoms with which the patient may respond to the physical stress imposed.

These symptoms may be divided into two classes. In the first class are symptomatic behaviour disorders that can be produced at any time in any individual given the appropriate drug or the appropriate stress in the appropriate quantity. Variations in the appearance of such symptoms among different individuals are based only on the different thresholds of the the individuals, some "breaking down" early, others only after exposure to a considerable quantity of the stress provoking stimulus. A random list of these "threshold symptoms" would contain the following: sleep, coma, confusion and delirium, amnesia, impairment of abstract thinking, possibly hallucinations and also fatigue, irritability, anxiety, and disturbances of the autonomic nervous system.

In the second class are the psychiatric symptoms and syndromes that are not "threshold symptoms" but depend on the matrix of personality in which they develop; thus they may develop in certain individuals and not in others regardless of the amount of stress imposed upon them. In this class one would find: paranoid states, pure manic states, pure depressions, delusions, hysterical manifestations, obsessive-compulsive symptoms and anxiety symptoms which persist after their original cause has been removed.

The value of such a distinction between threshold symptoms and non-threshold symptoms lies more in its negative than in its positive implications. Thus, one may visualize a nervous breakdown under stress with symptoms of acute anxiety, fatigability and irritability as being due to purely somatic reactions, although psychological causes alone can, of course, produce a very similar picture. On the other hand, a manic state without confusion but with paranoid delusions developing in a man who has recently undergone a prostatectomy or in a woman following childbirth, could not be regarded as due to somatic disease alone, even if the accompanying circumstances are very suggestive of such etiology. A predisposition to this kind of breakdown has to be present in the person reacting with it.

How rigid the borderline between threshold and non-threshold symptoms is and where it is to be drawn definitely must be established by further experimental investigation. Induced convulsions and induced hypoglycæmia in addition to the common disturbing factors of fatigue, infection, intoxication and deficiency are giving us new insight into the manner in which the organism reacts psychologically to physiological stress. The clinical study of the psychoses with somatic disease is perhaps the most important factor in the solution of the problems connected with them. Many cases can be treated successfully in a general hospital because of the acute nature of these mental disorders and because the patients are often in urgent need of medical or surgical attention. Undoubtedly a number of these breakdowns may be prevented as more is learned about their nature.

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RÉSUMÉ

Le diagnostic de "psychose accompagnée de désordres somatiques" est assez discuté et ne figure pas toujours avec la même signification dans les diverses nomenclatures psychiâtriques. Cette étiquette commode est cependant maintenue, du moins, dans les classifications anglo-saxonnes. Il faut retenir que le pronostic de ces états sera notablement assombri chez les individus porteurs de lourdes hérédités psychopathiques, et que, inversement, beaucoup de malades présenteront un tableau analogue, habituellement curable, quand le fonds héréditaire sera bon et que l'étiologie aura été déterminée par des facteurs anoxémiques. Deux ordres de symptômes pourront être observés selon la facilité avec laquelle le "seuil psychosique" sera franchi: chez les uns les signes seront constants et à peu près identiques; chez les autres, ils seront colorés selon les traits constitutionnels innés. Cette distinction oriente la diagnostic définitif et précise le pronostic. Les données tirées de l'étude du seuil psychosique seront un jour mieux connues lorsque nous aurons mieux observé qui se passe au cours des électro-chocs et de l'hypoglycémie provoquée. On arrivera vraisemblablement à prévenir l'accès psychosique et on traitera davantage ces malades dans les hôpitaux généraux. JEAN SAUCIER